

What is claimed is:

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5 1. A method for limiting a number of writes to a write-many memory device, the method comprising:

(a) providing a write-many memory device comprising a plurality of blocks of memory, each block being limited to N number of writes; and

(b) storing data in a block of memory only if there have been fewer than N number of writes to the block.

10 2. The invention of Claim 1, wherein each block comprises a sideband field storing data indicating how many times the block has been written into, and wherein (b) comprises storing data in a block of memory only if the data stored in the sideband field of the block indicates that there have been fewer than N number of writes to the block.

15 3. The invention of Claim 2, wherein each block further comprises an additional sideband field storing data indicating whether the block is free, and wherein (b) comprises storing data in a block of memory only if the data stored in the sideband field of the block indicates that there have been fewer than N number of writes to the block and the data stored in the additional sideband field of the block indicates that the block is free.

20 4. The invention of Claim 1, wherein the write-many memory device stores a file system structure that indicates how many times each block has been written into, and wherein (b) comprises storing data in a block of memory only if the data stored in the file system structure indicates that there have been fewer than N number of writes to the block.

25 5. The invention of Claim 1, wherein the write-many memory device is coupled with a host device, and wherein (b) comprises storing data in a block of memory only if the host device determines there have been fewer than N number of writes to the block.

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6. The invention of Claim 1, wherein the write-many memory device comprises a controller, and wherein (b) comprises storing data in a block of memory only if the controller determines there have been fewer than N number of writes to the block.

7. The invention of Claim 1, wherein N is chosen by a manufacturer of the write-many memory device to segment a write-many memory device market.

8. The invention of Claim 1, wherein N is fewer than a maximum allowable number of qualified writes to the write-many memory device.

9. A method for limiting a number of writes to a write-many memory device, the method comprising:

(a) providing a write-many memory device comprising a plurality of blocks of memory, each block comprising a first sideband field storing data indicating whether the block is free and a second sideband field storing data indicating how many times the block has been written into;

(b) determining whether there are enough blocks free to store a file; and

(c) if there are enough blocks free to store the file:

(c1) storing the file in at least some of the blocks free to store the file;

(c2) in the first sideband fields of the blocks storing the file, storing data indicating that the blocks are not free; and

(c3) in the second sideband fields of the blocks storing the file, updating the data indicating how many times the blocks have been written into.

10. The invention of Claim 9, wherein (c1) is performed before (c3).

11. The invention of Claim 9, wherein (c3) is performed before (c1).

12. The invention of Claim 9 further comprising:

(d) if there are not enough blocks free to store the file, selecting a previously-stored file to be erased, the previously-stored file being stored in a first set of blocks.

13. The invention of Claim 12 further comprising:

(e) if the second sideband fields of the first set of blocks indicate that the first set of blocks has been written into fewer than a maximum number of times:

(e1) in the first sideband fields of the first set of blocks, storing data indicating that the blocks are free; and

(e2) storing the file in at least some of the first set of blocks.

14. The invention of Claim 12 further comprising:

(e) if the second sideband fields of the first set of blocks indicate that the first set of blocks has been written into a maximum number of times, preventing the previously-stored file from being erased.

15. The invention of Claim 12 further comprising:

(e) if some of the second sideband fields of the first set of blocks indicate that their respective blocks have been written into fewer than a maximum number of times and others of the second sideband fields indicate that their respective blocks have been written into a maximum number of times, in the first sideband fields of the blocks that have been written into fewer than a maximum number of times, storing data indicating that those blocks are free to be written into.

16. The invention of Claim 15 further comprising, between (d) and (e), informing a user of the amount of space that will become available if the previously-stored file is erased and requesting the user to confirm that the previously-stored file should be erased.

Sub B1 → 17. The invention of Claim 9, wherein a maximum number of times a block can be written into is chosen by a manufacturer of the write-many memory device to segment a write-many memory device market.

5 18. The invention of Claim 9, wherein a maximum number of times a block can be written into is fewer than a maximum allowable number of qualified writes to the write-many memory device.

10 19. A write-many memory device comprising a plurality of blocks of memory, each block being limited to N number of writes.

15 20. The invention of Claim 19 further comprising a host device coupled with the write-many memory device, wherein the host device is operative to store data in a block of memory only if there have been fewer than N number of writes to the block.

20 21. The invention of Claim 19, wherein each block comprises a first sideband field storing data indicating whether the block is free and a second sideband field storing data indicating how many times the block has been written into.

25 22. The invention of Claim 19, wherein N is chosen by a manufacturer of the write-many memory device to segment a write-many memory device market.

23. ~~The invention of Claim 19, wherein N is fewer than a maximum allowable number of qualified writes to the write-many memory device.~~

Sub B1 → 24. The invention of Claim 1, wherein N is chosen by a manufacturer of the write-many memory device.

30 25. The invention of Claim 1, wherein N is chosen to limit use of a program stored in the write-many memory device.

26. ~~The invention of Claim 1, wherein N is equal to a maximum allowable number of qualified writes to the write-many memory device.~~

27. The invention of Claim 1, wherein the write-many memory device comprises at least one additional block of memory that is not limited to N number of writes.

28. The invention of Claim 27, wherein the at least one additional block of memory is limited to M number of writes, wherein $M \neq N$.

29. The invention of Claim 27, wherein the at least one additional block of memory is not limited to a predetermined number of writes.

30. The invention of Claim 27, wherein the at least one additional block of memory stores a file system structure.

31. The invention of Claim 9, wherein a maximum number of times a block can be written into is chosen by a manufacturer of the write-many memory device.

32. The invention of Claim 9, wherein a maximum number of times a block can be written into is chosen to limit use of a program stored in the write-many memory device.

33. The invention of Claim 9, wherein a maximum number of times a block can be written into is equal to a maximum allowable number of qualified writes to the write-many memory device.

34. The invention of Claim 9, wherein the write-many memory device comprises at least one additional block of memory comprising a different write limit that the plurality of blocks.

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Sub B1 35. The invention of Claim 34, wherein the at least one additional block of memory stores a file system structure.

5 36. The invention of Claim 9, wherein the write-many memory device comprises at least one additional block of memory that is not limited to a predetermined number of writes.

10 37. The invention of Claim 36, wherein the at least one additional block of memory stores a file system structure.

15 38. The invention of Claim 19, wherein N is chosen by a manufacturer of the write-many memory device.

39. The invention of Claim 19, wherein N is chosen to limit use of a program stored in the write-many memory device.

~~40. The invention of Claim 19, wherein N is equal to a maximum allowable number of qualified writes to the write-many memory device.~~

Sub B1 20 41. The invention of Claim 19, wherein the write-many memory device comprises at least one additional block of memory that is not limited to N number of writes.

25 42. The invention of Claim 41, wherein the at least one additional block of memory is limited to M number of writes, wherein $M \neq N$.

43. The invention of Claim 41, wherein the at least one additional block of memory is not limited to a predetermined number of writes.

30 44. The invention of Claim 41, wherein the at least one additional block of memory stores a file system structure.

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